

REMARKS

The office action of February 5, 2010, has been carefully considered.

It is noted that claims 1-5 are rejected under 35 U.S.C. 112, first paragraph.

Claims 1 and 4-5 are rejected under 35 U.S.C. 102(b) over the patent to Robotham.

Claim 2 is rejected under 35 U.S.C. 103(a) over Robotham in view of the patent to Draskovitch et al.

Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) over Robotham in view of the patent to Yoshida.

Applicant submits that the subject matter contained in the claims is described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

The term "roller-burnished" is the correct translation of the term "rolliert" found in the German-language international application, which term was originally miss-translated as simply "rolled". Applicant has attached a translation from Google translate indicating that "roller-burnishing" translates to "rollieren". Also attached is a translation of an entry from the German Wikipedia site for "Rollieren". This translation also translates "rollieren" as "roller burnishing".

In view of these considerations it is respectfully submitted that the rejection of claims 1-5 under 35 U.S.C. 112, first paragraph is overcome and should be withdrawn.

It is respectfully submitted that the claims presently on file differ essentially and in an unobvious, highly advantageous manner from the constructions disclosed in the references. The roller-burnished sealing surface is a structural feature of the sealing ring. A roller-burnished surface is a structural feature, not simply a process. "Roller-burnished" is used to describe a structural feature of the sealing surface of the sealing ring, just as, for example, a material can be defined to have a "textured", "embossed" or "coated" surface.

The references do not teach a sealing ring having a cylindrical, roller-burnished sealing surface, as in the present invention.

Turning now to the references and particularly to the patent to Robotham, it can be seen that this patent discloses a sealing assembly in which the carrier ring 6 is coated with a metal coating (see column 2, line 60 to column 3, line 6). The reference does not disclose a roller-burnished sealing surface, as in the presently claimed invention. The roller-burnished sealing surface provides a surface that is work-hardened while its roughness is minimized. Also, elevations in the micrometer range which are present are made smaller and harder, and thereby increase the life of the elastic sealing element and reduce friction. The prior art coatings change the tolerances and do not at the same time provide the surface with a roughness that is minimized.

In view of these considerations it is respectfully submitted that the rejection of claims 1 and 4-5 under 35 U.S.C. 102(b) over the above-discussed reference is overcome and should be withdrawn.

The patent to Draskovich et al. discloses a composite face seal in which the flat surface of the rotor is coated with a hard

material to minimize wear (see column 1, lines 65-67).

The Examiner combined Robotham with Draskovich et al. in determining that claim 2 would be unpatentable over such a combination. Neither Robotham nor Draskovich et al. teach a sealing ring having a roller-burnished sealing surface, but instead only teach a ring with a coated surface.

In view of these considerations it is respectfully submitted that the rejection of claim 2 under 35 U.S.C. 103(a) over a combination of the above-discussed references is overcome and should be withdrawn.

The patent to Yoshida discloses a seal structure for relatively rotational members. At column 15, lines 28-48, Yoshida describe a treated surface 200, 200a which is surface hardened and then coated.

The Examiner combined Robotham with Yoshida in determining that claim 1 and 3-5 would be unpatentable over such a combination. Neither Robotham nor Yoshida teach a sealing ring having a roller-burnished sealing surface, but instead only teach a ring with a coated surface.

In view of these considerations it is respectfully submitted that the rejection of claim 1 and 3-5 under 35 U.S.C. 103(a) over a combination of the above-discussed references is overcome and should be withdrawn.

Reconsideration and allowance of the present application are respectfully requested.

Any additional fees or charges required at this time in connection with this application may be charged to Patent and Trademark Office Deposit Account No. 11-1835.

Respectfully submitted,

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roller-burnishing

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 **Rollieren**

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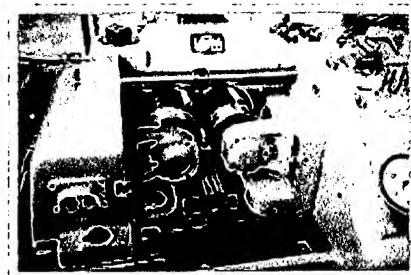
# Rollieren

aus Wikipedia, der freien Enzyklopädie

**Rollieren** ist eine saubere, spanlose Bearbeitung mit Wälzköpfen, zur Glättung und Verfestigung von Werkstoffoberflächen.<sup>[1]</sup> Dabei wird gegen ein sich drehendes Werkstück ein Rollierwerkzeug mit so großer Kraft gedrückt, dass das Material des Werkstücks zu fließen beginnt und verdrängt wird. Rollieren gehört nicht zu den dem Tiefbohren verwandten Verfahren<sup>[2]</sup>, kann jedoch auch in Bohrungen angewendet werden.

Das Rollieren erfolgt mit Werkzeugen (Rollierscheiben), die eine aufgerauta Wirkfläche besitzen, womit eine Verbesserung der Festigkeit, Prozesssicherheit und Oberflächengüte erzielt wird. Das Verfahren unterscheidet sich vom Glattwalzen.

Rollierscheiben bestehen aus Werkzeugstahl, Hartmetall oder Keramik, das durch Schleifen aufgeraut wurde (Rauheit ca. 6–15  $\mu\text{m}$ ).



Zylindrisches Werkstück zwischen Rollierrädern

## Quellen

1. <http://www.baublies.de/de/verfahren.html>
2. [http://www.tiefbohr-lexikon.de/Buchstabe\\_R/Rollieren/rollieren.html](http://www.tiefbohr-lexikon.de/Buchstabe_R/Rollieren/rollieren.html)

Von „<http://de.wikipedia.org/wiki/Rollieren>“

Kategorie: Fertigungsverfahren

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### German to English translation

Roller burnishing is a clean, non-cutting machining with Wälzköpfen, smoothing and hardening the surface of materials. [1] It is pressed against a rotating workpiece a roller burnishing tool with such force that the material begins to flow and the workpiece is displaced. Roller burnishing is not one of the deep drilling related to the procedure [2], but can also be used in drilling.

The rolling is done with tools (burnishing) having an active surface roughened, thereby improving the strength, surface quality and process reliability is achieved. The procedure differs from burnishing.

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